



**RADIO FOR MERCHANT SHIPS**

**INTERNATIONAL MARINE RADIO COMPANY LIMITED  
CROYDON · ENGLAND**

**MARINE COMMUNICATION  
RECEIVER**



## PRELIMINARY DESCRIPTION OF MARINE ALL-WAVE COMMUNICATION RECEIVER TYPE IMR. 54

This receiver complies with the General Post Office Specification entitled "PERFORMANCE SPECIFICATION FOR A GENERAL PURPOSE RECEIVER FOR SHIPS." It will therefore meet the requirements of the following:—

- British Merchant Shipping (Wireless Telegraphy) Rules.
- Rules laid down by the International Safety of Life at Sea Convention, 1948.
- International Radio Regulations laid down by the Radiocommunications Convention—Atlantic City, 1947.

The relevant sections of the equipment also conform to the requirements of Lloyds and I.E.E. Rules for electrical installations aboard ship.

### GENERAL:

The IMR.54 Receiver is a high class marine communication receiver covering the requirements of a long-wave, medium-wave and short-wave main receiver in all compulsorily equipped ships.

### FEATURES:

- Complete coverage of the frequency band 15 Kcs to 31 Mcs in 10 ranges.
- Direct operation from 110-250 volts A.C. or D.C. without conversion equipment.
- Mechanical bandspread giving scale of 160 inches for each range. 16 inch scale calibrated in frequency.
- Meter and switch for checking all valves. This meter also operates as a tuning indicator.

- Four degrees of selectivity including crystal filter in very narrow position.
- Built-in loudspeaker for monitoring purposes.
- Use of International and preferred type valves.
- Compartment in cabinet for stowage of spare valves, fuses, etc.
- Ease of access for servicing combined with robustness.
- Listening-through facilities are incorporated to enable "break-in" operation when used in conjunction with a local transmitter.

### BASIC CIRCUIT ARRANGEMENT:

The circuit is superheterodyne throughout, with two intermediate frequencies. A total of 12 valves are used.

The power supply is basically 110 volts A.C. or D.C. in order that it may be operated directly from ship's mains without the use of rotary machines or other conversion equipment. In the case of D.C. voltages higher than 110V, a special resistor unit is provided and for higher A.C. voltages a step-down transformer. Operation from a 24 volt emergency battery source may be obtained by means of an external vibrator power unit.

### PERFORMANCE:

Frequency Ranges:

Range	Frequency (Mc/s)	Wavelength (metres)
1.	14 - 31	9.7 - 21.5
2.	8 - 14	21.5 - 37.5
3.	3.8 - 8	37.5 - 79
4.	1.5 - 3.8	79 - 200
5.	600 - 1500	200 - 500
6.	240 - 600	500 - 1250
7.	92 - 240	1250 - 3260
8.	48 - 92	3260 - 6250
9.	26 - 48	6250 - 11539
10.	15 - 26	11539 - 20000

Tuning is by means of a 2-speed gear drive giving reduction ratios of 12.5:1 and 2.5:1.

Mechanical bandspread amounts to 160 inches of scale per range.

All ranges are calibrated in frequency.

### SELECTIVITY:

Four degrees of selectivity are provided as follows:—

BANDWIDTH	Wide	Intermediate	Narrow	Very Narrow
FREQUENCY RANGE	1.5-25 Mc/s	160 Kc/s-25 Mc/s	15 Kc/s-25 Mc/s	15-160 Kc/s
Not more than 6 db discrimination at frequencies removed from tune by	4 Kc/s	1.5 Kc/s	0.5 Kc/s (above 100 Kc/s)	—
At least 30 db discrimination for all frequencies removed from tune by	12 Kc/s	6 Kc/s	2.5 Kc/s	0.75 Kc/s
At least 60 db discrimination for all frequencies removed from tune by	24 Kc/s	12 Kc/s	5 Kc/s	5 Kc/s
At least 90 db discrimination at all frequencies removed from tune by	50 Kc/s	35 Kc/s	25 Kc/s	25 Kc/s

### IMAGE DISCRIMINATION:

Frequency Range	15 - 1000 Kc/s	at least 80 db down
	1.0 - 1.5 Mc/s	70 db
	1.5 - 7 Mc/s	60 db
	7 - 15 Mc/s	40 db
	15 - 31 Mc/s	25 db
I.F. Rejection	110 Kc/s I.F.	60 db
	465 Kc/s	90 db

## FOREWORD

Maintaining this Company's leadership in the field of marine radio communication, we are proud to announce an entirely new line of equipment approved to the new technical specifications laid down by the United Kingdom Government Committee known as the "Ship's Wireless Working Party." This Committee, which is representative of the General Post Office, Ministry of Transport, Admiralty, Shipping Interests and Marine Wireless Operating Companies, is also responsible for the drafting of the new Merchant Shipping (Radio) Rules with which future installations will have to comply.

### SIGNAL-TO-NOISE/SENSITIVITY — For 50 milliwatts output

Frequency	Input	Signal/Noise Ratio	Wave	Bandwidth
15 - 160 Kc/s .. ..	4 - 20 uV	10 db	A1	Narrow
160 - 1500 Kc/s .. ..	6 - 10 uV	10 db	A1 & A2	Intermediate
1.5 - 4.0 Mc/s .. ..	1.5 - 3 uV	10 db	A1 & A2	Wide
4 - 10 Mc/s .. ..	2 - 3 uV	10 db	A1 & A2	Wide
4 - 10 Mc/s .. ..	4 - 6 uV	20 db	A1 & A2	Wide
10 - 31 Mc/s .. ..	2 - 4 uV	10 db	A1 & A2	Wide
10 - 31 Mc/s .. ..	8 - 10 uV	25 db	A1 & A2	Wide

MAXIMUM OUTPUT: 1.0 watts

The above figures were taken under the following test conditions:

DUMMY AERIAL: Above 4 Mc/s ..... 75 ohms Resistance only.

Below 4 Mc/s ..... 200 pf + 13 ohms.

A1 BFO Switched off. A2 Carrier removed.

### FIDELITY:

Response level within 4 db from 300-2500 c.p.s. with wide band selectivity.

### AUTOMATIC GAIN CONTROL:

Audio output is constant within 8 db for increases up to 80 db above an input of 8 uV.

Build-up time constant is 0.1 second and decay time 1 second.

### AERIAL INPUT IMPEDANCE: 72 ohms nominal.

### GENERAL CONSTRUCTION:

All components and materials are of tropical finish to the latest Specification.

The cabinet is of louvred mild steel with non-ferrous chassis and cast coil box. All metal parts are protected against rust and corrosion and the cabinet is finished in grey stove enamel with chromium-plated handles and fittings.

Shock absorber mountings are provided where required.

### DIMENSIONS (overall)

Length .. .. .	2 ft. 5 $\frac{3}{8}$ ins. (74.7 cm)
Depth .. .. .	1 ft. 5 $\frac{3}{8}$ ins. (45.1 cm)
Height .. .. .	1 ft. 2 $\frac{3}{8}$ ins. (38.5 cm)
Weight .. .. .	134 lbs. (60.9 kg)

